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EXAMINER	
HOANG, HIEU T	

ART UNIT	PAPER NUMBER
2452	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/789,585	GUO ET AL.	
	Examiner	Art Unit	
	HIEU T. HOANG	2452	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20 and 22-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20 and 22-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the communication filed on 10/17/2008.

2. Claims 1-20 and 22-29 are pending.

Response to Amendment

3. The 35 U.S.C. 101 and 112 rejections have been withdrawn due to the amendment.

Response to Arguments

4. Applicant's arguments have been fully considered but they are unpersuasive.

5. Applicant argues that the prior art does not teach each action message comprises a reaction time associated with the action message. The examiner submits that each action message from a player in Lin comprises a sending time of the action message. However, delivering action messages for processing at a game server is based on an order of increasing reaction time (Lin, section 5, sync-in, par. 3). Although Lin explicitly discloses an action message comprises a tag indicating sending time of each action message (Lin, section 5, sync-in, par. 2), Lin also discloses the correlation between sending time and reaction time (Lin, section 5, sync-in, par. 3, fig. 3, reaction time delta(i) and sending time t(i), because player 3 reacts to the update message faster, reaction time of player 3 is smaller hence sending time of player 3 is smaller). Therefore, it would have been obvious for one skilled in the art at the time of the invention to modify Lin so that instead of using a tag comprising sending time, one can

use a tag comprising reaction time, and still produce the same delivery fairness of action messages for processing at a game server.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This office action contains multiple ground(s) of rejections. Applicant is reminded to review each ground of rejection separately.

First rejection

8. Claims 1-20, 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (Sync-MS: Synchronized Messaging Service for Real-Time Multi-Player Distributed Games, hereafter Lin), in view of Lamport (Time, Clocks, and the Ordering of Events in a Distributed System).

9. For claim 1, Lin discloses a method of providing a fair exchange of messages to players of a distributed multi-player game taking place over a communications network (title, abstract), said method comprising the steps of:

utilizing a multi-player game server that generates update messages to said players and receives action messages from said players (introduction, par. 2, game server sends update messages to players and receives action messages from the players);

wherein each action message received from a player comprises a sending time that exhibits a reaction time associated with the action message (section 5, sync-in, par. 2, 3, fig. 3, action message contains sending time, because player 3 reacts to the update message faster, reaction time of player 3 is smaller hence sending time of player 3 is smaller),

said reaction time being a difference between reception of an update message by a player and a sending of an action message by said player in response to said update message (fig. 2, p. 3, col. 2, par. 2, sync_in, time between the arrival of update message and sending out of action message at the player, fig. 3, delta time periods are reaction times)

delivering said action messages for processing by said game server in an order of increasing reaction time (fig. 2, p. 3, col. 2, par. 2, sync_in, the SMS or sync-MS server delivers A2 action message before A1 action message, since player 2 reacts faster).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to modify Lin so that instead of using a tag comprising sending time, one can use a tag comprising reaction time, and still produce the same delivery fairness of action messages for processing at a game server.

Lin uses synchronized clocks at said game server and said players because Lin implements player action fairness or fair order based on real time occurrence or physical clocks requiring physical clock synchronization (1.1, par. 3). Lin does not disclose that fair order is without clock synchronization among said game server and said players.

However, Lamport discloses ordering of gaming events can be done using logical clocks without using physical clocks of the server and players (pages 558-562, the partial ordering, par. 1, page 560, par. 1, ordering of events using the partial ordering method employing logical clocks)

Therefore, it would have been obvious for one skilled in the art at the time of the invention to modify the system of Lim's by ordering events (or reaction times) using logical clock concept of Lamport instead of using real-time or physical clocks and therefore avoid the need of physical clock synchronization.

10. For claim 2, Lin-Lamport discloses the invention as in claim 1. Lin-Lamport further discloses a game server proxy is operable in connection with said game server for receiving and ordering of said action messages and forwarding said action messages to said game server (Lin, fig. 2, SMS, sync-MS-server).

11. For claim 3, Lin-Lamport discloses the invention as in claim 2. Lin-Lamport further discloses each action message received at said game server proxy is delayed until a computed delivery time is reached to ensure fair processing of the action

messages sent from all players (Lin, fig. 2, p. 3, col. 2, par. 2, sync_in, last 2 lines, mark 2 shows added delay to ensure that faster reaction will get to the server first).

12. For claim 4, Lin-Lamport discloses the invention as in claim 2. Lin-Lamport further discloses said server proxy associates a message number with the update messages sent to said players thereby tracking an update message to which an action message responds (Lin, fig. 2, update messages U1, U2).

13. For claim 5, Lin-Lamport discloses the invention as in claim 2. Lin-Lamport further discloses said server proxy records a sending time for an update message and associates said update message with a sending time (Lin, fig. 2, sending times of U1 and U2 are recorded).

14. For claim 6, Lin-Lamport discloses the invention as in claim 2. Lin-Lamport further discloses a player proxy is operable in connection with said game server for receiving said update messages from said game server and forwarding said update messages to said game players, and for receiving said action messages from said game players and forwarding said action messages to said game server (Lin, fig. 2, SMS or proxy server and SMCs receive update messages from game server and forwards to players, and receives action messages from the players and forwards to the game server).

15. For claim 7, Lin-Lamport discloses the invention as in claim 6. Lin-Lamport further discloses a player proxy records a reception time of an update message and uses said reception time to calculate said reaction time once said action message is sent by said player (Lin, fig. 2, p. 3, col. 2, par. 2, sync_in, calculating reaction time).

16. For claim 8, Lin-Lamport discloses the invention as in claim 6. Lin-Lamport further discloses said player proxy sends an update message number, said reaction time and an action message number with said action message (Lin, fig. 2, Ui, update message number, Ai, action message number, fig. 4).

17. For claim 9, Lin-Lamport discloses the invention as in claim 6. Lin-Lamport further discloses a message split mechanism is employed at said player proxy when multiple update messages are outstanding (Lin, fig. 4, section 6.1.1, par. 1 and 2, multiple Ui arrives at SMC), each action message associated with a window of update messages, a reaction time being calculated for each action message with respect to each said outstanding update message (Lin, fig. 4, section 6.1.1, par. 1 and 2, during bar 2, respective update message of Ai, or rum(Lin, Ai) corresponds to the outstanding update message).

18. For claim 10, Lin-Lamport discloses the invention as in claim 3. Lin-Lamport further discloses the wait timeout period is calculated by some multiple of the expected round trip time between said server proxy and player proxy (Lin, 5.1, MaxWait, par. 1).

19. For claim 11, Lin-Lamport discloses the invention as in claim 1. Lin-Lamport further discloses an appropriate delivery time formula for an action message is utilized depending on whether action messages arrive in order and within their wait timeout periods, action messages arrive out of order but within their wait timeout periods (Lin, 5.1, par. 1, considering received and delivered all action messages sent to it from any SMC earlier than s(H)), or action messages arrive outside their wait timeout periods

(Lin, 5.1, MaxWait, algorithm considers the message too late to be processed in a first order).

20. For claim 12, Lin-Lamport discloses the invention as in claim 2. Lin-Lamport further discloses said server proxy (Lin, fig. 2, SMS), when an action message is received, computes a position in a queue where said action message should be inserted and a local delivery time at which said message is to be delivered to said game server (Lin, fig. 2, p. 3, col. 2, par. 2, sync_in, SMS determines wait time mark 2 to deliver action message to the game server).

21. For claim 13, Lin-Lamport discloses the invention as in claim 12. Lin-Lamport further discloses said delivery queue is kept sorted based on message number and reaction time, respectively (Lin, fig. 2, p. 3, col. 2, par. 2, sync_in, deliver action messages based on increasing order reaction time of players).

22. For claim 14, Lin-Lamport discloses the invention as in claim 11. Lin-Lamport further discloses the delivery time of an action message at a server proxy is calculated before being inserted to a delivery queue (Lin, fig. 3, delivery time of A2 is calculated and put in a ready queue to be sent to the game server), and recalculated upon new action message arrival when messages arrive in order or out of order but within their wait timeout periods (Lin, 5.1, par. 1, algorithm considering whether earlier messages arrived and delivered in or out of order).

23. For claim 15, Lin-Lamport discloses the invention as in claim 11. Lin-Lamport further discloses action message numbers are used by a server proxy when messages arrive out of order to order messages from a specific player and to determine whether

all earlier messages sent by said player have arrived (Lin, fig. 3, action message has an index i, e.g. Ai).

24. For claim 16, Lin-Lamport discloses the invention as in claim 11. Lin-Lamport further discloses delivery time of an action message at a server proxy is calculated before being inserted to the delivery queue (Lin, fig. 3, delivery time of A2 is calculated and put in a ready queue to be sent to the game server), and recalculated upon new action message arrival and action message delivery when messages arrive outside of the wait timeout period (Lin, 5.1, par. 2, too late to be processed in a fair order).

25. For claim 17, Lin-Lamport discloses the invention as in claim 6. Lin-Lamport further discloses when action messages are sent by players (Lin, fig. 3, action messages Ai), a set of tuples are tagged onto each of the action messages by their proxies each representing the reaction time from the time a set of update messages are received (Lin, fig. 2, p. 3, col. 2, par. 2, sync_in, each action message delivery time is based on reaction time of players), wherein a window for which this information needs to be sent is indicated by the server proxy when it sends an update message (Lin, section 5, last par., waiting period enforced by the SMS)

26. For claim 18, Lin-Lamport discloses the invention as in claim 6. Lin-Lamport further discloses a window of update messages for which reaction times are needed is indicated by the server proxy to the player proxies, the window being based on the determination by the server proxy about when to stop accepting action messages corresponding to a particular update message (Lin, section 5, last par., waiting period enforced by the SMS).

27. For claim 28, Lin-Lamport discloses the invention as in claim 3. Lin-Lamport further discloses said delivery time is based on a given wait timeout period (Lin, 5.2, SelectWait).

28. For claim 29, Lin-Lamport discloses the invention as in claim 12. Lin-Lamport further discloses an action message being inserted into multiple queues corresponding each to a respective update message in its window (Lin, fig. 4, 6.1, par. 1, each action message is associated with a update message)

29. For claim 22, Lin discloses a system for a distributed multi-player game, said system providing a fair exchange of messages to players of a distributed multi-player game taking place over a communications network; said system comprising:

a game server for generating update messages to said players and receiving action messages from said players (introduction, par. 2, game server sends update messages to players and receives action messages from the players);

wherein each action message received from a player at the game server comprises a sending time that exhibits a reaction time associated with the action message (section 5, sync-in, par. 2, 3, fig. 3, action message contains sending time, because player 3 reacts to the update message faster, reaction time of player 3 is smaller hence sending time of player 3 is smaller),

said reaction time being a difference between reception of an update message by a player and a sending of an action message by said player in response to said

update message (fig. 2, p. 3, col. 2, par. 2, sync_in, time between the arrival of update message and sending out of action message at the player).

a server proxy for delivering said action messages for processing by said game server in an order of increasing reaction time (fig. 2, p. 3, col. 2, par. 2, sync_in, the SMS or sync-MS server delivers A2 action message before A1 action message, since player 2 reacts faster).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to modify Lin so that instead of using a tag comprising sending time, one can use a tag comprising reaction time, and still produce the same delivery fairness of action messages for processing at a game server.

Lin uses synchronized clocks at said game server and said players because Lin implements player action fairness or fair order based on real time occurrence or physical clocks (1.1, par. 3). Lin does not disclose that fair order is without clock synchronization among said game server and said players.

However, Lamport discloses ordering of gaming events can be done using logical clocks without using physical clocks (pages 558-562, the partial ordering, par. 1, page 560, par. 1, ordering of events using the partial ordering method employing logical clocks)

Therefore, it would have been obvious for one skilled in the art at the time of the invention to modify the system of Lim's by ordering events (or reaction times) using logical clock concept of Lamport instead of using real-time or physical clocks and therefore avoid the need of physical clock synchronization.

30. For claim 23, Lin-Lamport discloses the invention as in claim 22. Lin-Lamport further discloses a plurality of player proxies of said multi-player game (Lin, fig. 2, SMC), each of said player proxies being operable to:

receive an update message from said game server at said player proxy; record a reception time of said update message at said player proxy (Lin, fig. 3, SMC receives U1 and records time of U1 arrival); and

calculate a reaction time using said reception time, said reaction time transmitted by said player proxy in connection with an action message (Lin, fig. 3, reaction times are delta intervals at client proxies).

31. For claim 24, Lin-Lamport discloses the invention as in claim 23. Lin-Lamport further discloses each of said player proxies is adapted to send an update message number, reaction time and action message number with an action message (Lin, fig. 3, update message Ui, delta interval or reaction time, action messages Ai).

32. For claim 25, Lin-Lamport discloses the invention as in claim 23. Lin-Lamport further discloses said reaction time is used by said multi-player game at said server proxy to order responses by said players to thereby provide said fair exchange of messages (Lin, fig. 3, section 5, par. 3, SMS server proxy enforces a wait time for delivery of action messages based on received information).

33. For claim 26, the claim is rejected for the same rationale as in claim 11.

34. For claim 27, the claim is rejected for the same rationale as in claim 12.

35. For claim 19, Lin discloses a method of providing a fair exchange of messages to players of a distributed multi-player game taking place over a communications network, said multi-player game generating update messages to said players and receiving action messages from said players, said method comprising the steps of:

receiving an update message from a game server at a player proxy (fig. 2, p. 3, col. 2, par. 2, sync_in, proxy SMS receives update messages from game server);

recording a reception time of said update message at said player proxy (fig. 2, time of arrival of update message Ui is recorded); and

calculating a reaction time using said reception time (fig. 2, p. 3, col. 2, par. 2, sync_in, reaction time is calculated as the time difference between the arrival of Ui and the departure of Ai at a player station, fig. 3, delta times).

Wherein said reaction time is used by said multi-player game to order responses by said players to thereby provide said fair exchange of messages (fig. 2, p. 3, col. 2, par. 2, sync_in, deliver A2 first because player 2 has faster reaction time)

Lin discloses a sending time transmitted by said player proxy in connection with an action message; the sending time exhibits the reaction time associated with the action message (section 5, sync-in, par. 2, 3, fig. 3, action message contains sending time, because player 3 reacts to the update message faster, reaction time of player 3 is smaller hence sending time of player 3 is smaller).

Lin does not disclose said reaction time transmitted by said player proxy in connection with an action message.

It would have been obvious for one skilled in the art at the time of the invention to modify Lin so that instead of using a tag comprising sending time, one can use a tag comprising reaction time, and still produce the same delivery fairness of action messages for processing at a game server.

Lin uses synchronized clocks at said game server and said players because Lin implements player action fairness or fair order based on real time occurrence or physical clocks (1.1, par. 3). Lin does not disclose that fair order is without clock synchronization among said game server and said players.

However, Lamport discloses ordering of gaming events can be done using logical clocks without using physical clocks (pages 558-562, the partial ordering, par. 1, page 560, par. 1, ordering of events using the partial ordering method employing logical clocks)

Therefore, it would have been obvious for one skilled in the art at the time of the invention to modify the system of Lim's by ordering events (or reaction times) using logical clock concept of Lamport instead of using real-time or physical clocks and therefore avoid the need of physical clock synchronization.

36. For claim 20, Lin-Lamport further discloses said player proxy sends an update message number, reaction time and action message number with an action message (Lin, fig. 2, fig. 4).

Second rejection.

37. Claims 1-20, 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (Sync-MS: Synchronized Messaging Service for Real-Time Multi-Player Distributed Games, hereafter Lin), in view of Watson Jr. et al. (US 4,633,421, hereafter Watson).

38. For claim 1, Lin discloses a method of providing a fair exchange of messages to players of a distributed multi-player game taking place over a communications network (title, abstract), said method comprising the steps of:

utilizing a multi-player game server that generates update messages to said players and receives action messages from said players (introduction, par. 2, game server sends update messages to players and receives action messages from the players);

wherein each action message received from a player comprises a sending time that exhibits a reaction time associated with the action message (section 5, sync-in, par. 2, 3, fig. 3, action message contains sending time, because player 3 reacts to the update message faster, reaction time of player 3 is smaller hence sending time of player 3 is smaller),

said reaction time being a difference between reception of an update message by a player and a sending of an action message by said player in response to said update message (fig. 2, p. 3, col. 2, par. 2, sync_in, time between the arrival of update message and sending out of action message at the player, fig. 3, delta time periods are reaction times)

delivering said action messages for processing by said game server in an order of increasing reaction time (fig. 2, p. 3, col. 2, par. 2, sync_in, the SMS or sync-MS server delivers A2 action message before A1 action message, since player 2 reacts faster).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to modify Lin so that instead of using a tag comprising sending time, one can use a tag comprising reaction time, and still produce the same delivery fairness of action messages for processing at a game server.

Lin uses synchronized clocks at said game server and said players because Lin implements player action fairness or fair order based on real time occurrence or physical clocks requiring physical clock synchronization (1.1, par. 3). Lin does not disclose that fair order is without clock synchronization among said game server and said players.

However, Watson discloses ordering of events can be done without clock synchronization among the server and players (col. 1 lines 14-21, ordering of events at remote locations when there are no synchronized clocks available)

Therefore, it would have been obvious for one skilled in the art at the time of the invention to modify the system of Lim's by ordering events (or reaction times) using event ordering with no clock synchronization of Watson therefore avoid the need of physical clock synchronization.

39. For claim 2, Lin-Watson discloses the invention as in claim 1. Lin-Watson further discloses a game server proxy is operable in connection with said game server for receiving and ordering of said action messages and forwarding said action messages to said game server (Lin, fig. 2, SMS, sync-MS-server).

40. For claim 3, Lin-Watson discloses the invention as in claim 2. Lin-Watson further discloses each action message received at said game server proxy is delayed until a computed delivery time is reached to ensure fair processing of the action messages sent from all players (Lin, fig. 2, p. 3, col. 2, par. 2, sync_in, last 2 lines, mark 2 shows added delay to ensure that faster reaction will get to the server first).

41. For claim 4, Lin-Watson discloses the invention as in claim 2. Lin-Watson further discloses said server proxy associates a message number with the update messages sent to said players thereby tracking an update message to which an action message responds (Lin, fig. 2, update messages U1, U2).

42. For claim 5, Lin-Watson discloses the invention as in claim 2. Lin-Watson further discloses said server proxy records a sending time for an update message and associates said update message with a sending time (Lin, fig. 2, sending times of U1 and U2 are recorded).

43. For claim 6, Lin-Watson discloses the invention as in claim 2. Lin-Watson further discloses a player proxy is operable in connection with said game server for receiving said update messages from said game server and forwarding said update messages to said game players, and for receiving said action messages from said game players and forwarding said action messages to said game server (Lin, fig. 2, SMS or proxy server

and SMCs receive update messages from game server and forwards to players, and receives action messages from the players and forwards to the game server).

44. For claim 7, Lin-Watson discloses the invention as in claim 6. Lin-Watson further discloses a player proxy records a reception time of an update message and uses said reception time to calculate said reaction time once said action message is sent by said player (Lin, fig. 2, p. 3, col. 2, par. 2, sync_in, calculating reaction time).

45. For claim 8, Lin-Watson discloses the invention as in claim 6. Lin-Watson further discloses said player proxy sends an update message number, said reaction time and an action message number with said action message (Lin, fig. 2, Ui, update message number, Ai, action message number, fig. 4).

46. For claim 9, Lin-Watson discloses the invention as in claim 6. Lin-Watson further discloses a message split mechanism is employed at said player proxy when multiple update messages are outstanding (Lin, fig. 4, section 6.1.1, par. 1 and 2, multiple Ui arrives at SMC), each action message associated with a window of update messages, a reaction time being calculated for each action message with respect to each said outstanding update message (Lin, fig. 4, section 6.1.1, par. 1 and 2, during bar 2, respective update message of Ai, or rum(Lin, Ai) corresponds to the outstanding update message).

47. For claim 10, Lin-Watson discloses the invention as in claim 3. Lin-Watson further discloses the wait timeout period is calculated by some multiple of the expected round trip time between said server proxy and player proxy (Lin, 5.1, MaxWait, par. 1).

48. For claim 11, Lin-Watson discloses the invention as in claim 1. Lin-Watson further discloses an appropriate delivery time formula for an action message is utilized depending on whether action messages arrive in order and within their wait timeout periods, action messages arrive out of order but within their wait timeout periods (Lin, 5.1, par. 1, considering received and delivered all action messages sent to it from any SMC earlier than s(H)), or action messages arrive outside their wait timeout periods (Lin, 5.1, MaxWait, algorithm considers the message too late to be processed in a first order).

49. For claim 12, Lin-Watson discloses the invention as in claim 2. Lin-Watson further discloses said server proxy (Lin, fig. 2, SMS), when an action message is received, computes a position in a queue where said action message should be inserted and a local delivery time at which said message is to be delivered to said game server (Lin, fig. 2, p. 3, col. 2, par. 2, sync_in, SMS determines wait time mark 2 to deliver action message to the game server).

50. For claim 13, Lin-Watson discloses the invention as in claim 12. Lin-Watson further discloses said delivery queue is kept sorted based on message number and reaction time, respectively (Lin, fig. 2, p. 3, col. 2, par. 2, sync_in, deliver action messages based on increasing order reaction time of players).

51. For claim 14, Lin-Watson discloses the invention as in claim 11. Lin-Watson further discloses the delivery time of an action message at a server proxy is calculated before being inserted to a delivery queue (Lin, fig. 3, delivery time of A2 is calculated and put in a ready queue to be sent to the game server), and recalculated upon new

action message arrival when messages arrive in order or out of order but within their wait timeout periods (Lin, 5.1, par. 1, algorithm considering whether earlier messages arrived and delivered in or out of order).

52. For claim 15, Lin-Watson discloses the invention as in claim 11. Lin-Watson further discloses action message numbers are used by a server proxy when messages arrive out of order to order messages from a specific player and to determine whether all earlier messages sent by said player have arrived (Lin, fig. 3, action message has an index i, e.g. Ai).

53. For claim 16, Lin-Watson discloses the invention as in claim 11. Lin-Watson further discloses delivery time of an action message at a server proxy is calculated before being inserted to the delivery queue (Lin, fig. 3, delivery time of A2 is calculated and put in a ready queue to be sent to the game server), and recalculated upon new action message arrival and action message delivery when messages arrive outside of the wait timeout period (Lin, 5.1, par. 2, too late to be processed in a fair order).

54. For claim 17, Lin-Watson discloses the invention as in claim 6. Lin-Watson further discloses when action messages are sent by players (Lin, fig. 3, action messages Ai), a set of tuples are tagged onto each of the action messages by their proxies each representing the reaction time from the time a set of update messages are received (Lin, fig. 2, p. 3, col. 2, par. 2, sync_in, each action message delivery time is based on reaction time of players), wherein a window for which this information needs to be sent is indicated by the server proxy when it sends an update message (Lin, section 5, last par., waiting period enforced by the SMS)

55. For claim 18, Lin-Watson discloses the invention as in claim 6. Lin-Watson further discloses a window of update messages for which reaction times are needed is indicated by the server proxy to the player proxies, the window being based on the determination by the server proxy about when to stop accepting action messages corresponding to a particular update message (Lin, section 5, last par., waiting period enforced by the SMS).

56. For claim 28, Lin-Watson discloses the invention as in claim 3. Lin-Watson further discloses said delivery time is based on a given wait timeout period (Lin, 5.2, SelectWait).

57. For claim 29, Lin-Watson discloses the invention as in claim 12. Lin-Watson further discloses an action message being inserted into multiple queues corresponding each to a respective update message in its window (Lin, fig. 4, 6.1, par. 1, each action message is associated with a update message)

58. For claim 22, Lin discloses a system for a distributed multi-player game, said system providing a fair exchange of messages to players of a distributed multi-player game taking place over a communications network; said system comprising:

a game server for generating update messages to said players and receiving action messages from said players (introduction, par. 2, game server sends update messages to players and receives action messages from the players);

wherein each action message received from a player at the game server comprises a sending time that exhibits a reaction time associated with the action

message (section 5, sync-in, par. 2, 3, fig. 3, action message contains sending time, because player 3 reacts to the update message faster, reaction time of player 3 is smaller hence sending time of player 3 is smaller),

said reaction time being a difference between reception of an update message by a player and a sending of an action message by said player in response to said update message (fig. 2, p. 3, col. 2, par. 2, sync_in, time between the arrival of update message and sending out of action message at the player).

a server proxy for delivering said action messages for processing by said game server in an order of increasing reaction time (fig. 2, p. 3, col. 2, par. 2, sync_in, the SMS or sync-MS server delivers A2 action message before A1 action message, since player 2 reacts faster).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to modify Lin so that instead of using a tag comprising sending time, one can use a tag comprising reaction time, and still produce the same delivery fairness of action messages for processing at a game server.

Lin uses synchronized clocks at said game server and said players because Lin implements player action fairness or fair order based on real time occurrence or physical clocks (1.1, par. 3). Lin does not disclose that fair order is without clock synchronization among said game server and said players.

However, Watson discloses ordering of events can be done without clock synchronization among the server and players (col. 1 lines 14-21, ordering of events at remote locations when there are no synchronized clocks available)

Therefore, it would have been obvious for one skilled in the art at the time of the invention to modify the system of Lim's by ordering events (or reaction times) using event ordering with no clock synchronization of Watson therefore avoid the need of physical clock synchronization.

59. For claim 23, Lin-Watson discloses the invention as in claim 22. Lin-Watson further discloses a plurality of player proxies of said multi-player game (Lin, fig. 2, SMC), each of said player proxies being operable to:

receive an update message from said game server at said player proxy; record a reception time of said update message at said player proxy (Lin, fig. 3, SMC receives U1 and records time of U1 arrival); and

calculate a reaction time using said reception time, said reaction time transmitted by said player proxy in connection with an action message (Lin, fig. 3, reaction times are delta intervals at client proxies).

60. For claim 24, Lin-Watson discloses the invention as in claim 23. Lin-Watson further discloses each of said player proxies is adapted to send an update message number, reaction time and action message number with an action message (Lin, fig. 3, update message Ui, delta interval or reaction time, action messages Ai).

61. For claim 25, Lin-Watson discloses the invention as in claim 23. Lin-Watson further discloses said reaction time is used by said multi-player game at said server proxy to order responses by said players to thereby provide said fair exchange of messages (Lin, fig. 3, section 5, par. 3, SMS server proxy enforces a wait time for delivery of action messages based on received information).

62. For claim 26, the claim is rejected for the same rationale as in claim 11.

63. For claim 27, the claim is rejected for the same rationale as in claim 12.

64. For claim 19, Lin discloses a method of providing a fair exchange of messages to players of a distributed multi-player game taking place over a communications network, said multi-player game generating update messages to said players and receiving action messages from said players, said method comprising the steps of:

receiving an update message from a game server at a player proxy (fig. 2, p. 3, col. 2, par. 2, sync_in, proxy SMS receives update messages from game server);

recording a reception time of said update message at said player proxy (fig. 2, time of arrival of update message Ui is recorded); and

calculating a reaction time using said reception time (fig. 2, p. 3, col. 2, par. 2, sync_in, reaction time is calculated as the time difference between the arrival of Ui and the departure of Ai at a player station, fig. 3, delta times).

Wherein said reaction time is used by said multi-player game to order responses by said players to thereby provide said fair exchange of messages (fig. 2, p. 3, col. 2, par. 2, sync_in, deliver A2 first because player 2 has faster reaction time)

Lin discloses a sending time transmitted by said player proxy in connection with an action message; the sending time exhibits the reaction time associated with the action message (section 5, sync-in, par. 2, 3, fig. 3, action message contains sending time, because player 3 reacts to the update message faster, reaction time of player 3 is smaller hence sending time of player 3 is smaller).

Lin does not disclose said reaction time transmitted by said player proxy in connection with an action message.

It would have been obvious for one skilled in the art at the time of the invention to modify Lin so that instead of using a tag comprising sending time, one can use a tag comprising reaction time, and still produce the same delivery fairness of action messages for processing at a game server.

Lin uses synchronized clocks at said game server and said players because Lin implements player action fairness or fair order based on real time occurrence or physical clocks (1.1, par. 3). Lin does not disclose that fair order is without clock synchronization among said game server and said players.

However, Watson discloses ordering of events can be done without clock synchronization among the server and players (col. 1 lines 14-21, ordering of events at remote locations when there are no synchronized clocks available)

Therefore, it would have been obvious for one skilled in the art at the time of the invention to modify the system of Lim's by ordering events (or reaction times) using event ordering with no clock synchronization of Watson therefore avoid the need of physical clock synchronization.

65. For claim 20, Lin-Watson further discloses said player proxy sends an update message number, reaction time and action message number with an action message (Lin, fig. 2, fig. 4).

Conclusion

66. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

67. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hieu T. Hoang whose telephone number is 571-270-1253. The examiner can normally be reached on Monday-Thursday, 8 a.m.-5 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on 571-272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HH

/Kenny S Lin/

Primary Examiner, Art Unit 2452